well-known in the art. The transgenic non-human animal can be from any species, including avians and non-human mammals. According to this aspect of the invention, suitable non-human mammals include mice, rats, rabbits, guinea pigs, goats, sheep, pigs and cattle. Suitable avians include chickens, ducks, geese, quail, turkeys and pheasants.

The nucleic acid encoding the CATERPILLER polypeptide or functional fragment can be stably incorporated into cells within the transgenic animal (typically, by stable integration into the genome or by stably maintained episomal constructs). It is not necessary that every cell contain the transgene, and the animal can be a chimera of modified and unmodified cells, as long as a sufficient number of cells comprise and express the nucleic acid encoding the CATERPILLER polypeptide or functional fragment so that the animal is a useful screening tool.

Exemplary methods of using the transgenic non-human animals of the invention for *in vivo* screening of compounds that modulate inflammatory response (both pro- and anti-inflammatory responses), cell survival (both pro- and anti-survival) and/or the activity of a CATERPILLER polypeptide comprise administering a test compound to a transgenic non-human animal (*e.g.*, a mammal such as a mouse) comprising an isolated nucleic acid encoding a CATERPILLER polypeptide or functional fragment thereof stably incorporated into the genome, administering a test compound to the transgenic non-human animal, and detecting whether the test compound modulates inflammatory response, cell survival and/or CATERPILLER polypeptide activity (or the activity of a functional fragment). Other illustrative methods of the invention can be carried out to identify compounds that modulate MHC-II pathway activity, Toll-like receptor pathway activity, or NF-κB activity *in vivo*.

It is known in the art how to measure these responses *in vivo*. Illustrative approaches include observation of changes that can be studied by gross examination (edema, redness, swelling, fever, tenderness), histopathology (cellular infiltrates, cell activation markers, phagocytosis, dead cells), changes in cytokine profiles, and cell surface markers (*e.g.*, changes in TNFα, myeloperoxidase or CD69).